Kha

result. But the Kha ideal is to possess a battery of gongs of different sizes and timbres, and with these they manage to obtain quite perfect chords.

Industry. Withdrawn in their mountains where they live in small isolated groups, the Khas use their leisure time to make many basket-work and hollow-ware products which have a mark of elegance and a great deal of delicacy. Other tribes make paper from wood pulp, weave mats from rattan and bamboo bark, etc. They use all these products in trade.

Finally, certain Khas exploit deposits of iron ore and transform it into farming implements, while others wash gold-bearing sands.

In general, although the Khas are industrious they work only to procure what is strictly indispensable. They cannot resign themselves to staying away from home for any length of time and dread any stay in the low country, which they say is unhealthy for them. Since they have particular aptitudes for woodcutting, however, they have been successfully employed to cut teak wood in the forests on the right bank of the Mekong which are situated in Siamese territory. But it must be admitted that there they are in mountainous country and in the midst of forests, as in their native region.

The Khas of southern Laos. In southern Laos Khas are found who differ very little from those of Upper Laos. We shall not concern ourselves with them, but shall deal briefly with the many more numerous ones who have particular mores and customs.

The Djarais, the Rades, the Bahnars, the Cedangs, the Peunongs, the Rognaos (1), etc. are the principal types of these Kha tribes,

(1) See Appendix XVIII.

which for the most part are still independent.

These people are proud, large and muscular, supple, trained in all forms of bodily exercise, bold, warlike and brave.

These qualities, moreover, have been developed by their peculiar way of [257] [Illustration] [258] [Blank page] [259] life. Accustomed to hunting slaves from which they extracted large profits by selling them on the banks of the Mekong, these Khas have had to resort to continual expeditions in order to obtain their human game.

For many long years, in fact, they could acquire [Illustration here] the gongs, buffalo, metals, textiles, etc. which they needed only by selling captives, generally Annamites, whom they went and

as yet we can regard it only in the light of a reserve for the future and hope that this future is imminent. [Illustration alongside text here] 137 000

The establishment of sawmills near the points where trees are felled is not to be recommended, particularly in middle and upper Laos. Any industry of this type could not yet find sufficiently large local outlets, because of the difficulty of transportation. Moreover, the natives use only axes and machetes for felling and cutting up trees, and they would never be willing to underwrite the cost of sawmills. The only remaining recourse, therefore, is exploitation for the coastal markets or for export, and the future obviously lies herein. But as long as there are no railways leading from the Mekong to the Annam coast, or steamers capable of traversing the river from Luang-Prabang as far as the island of Khone without trans-shipping their cargo, there can be no thought of felling trees where they grow in order to export them in the form of wood ready for industry (planks, billets, beams) nor, in consequence, of establishing sawmills in the Laotian interior.

[308] The only method at present practical would be to float the undressed logs downriver, either by themselves if their density permits or else by means of bamboo floats. These logs could be floated down to North Khone and then cut up on the island itself by means of sawmills driven hydraulically by the waterfalls. They could then be transported to Pnom-Penh or Saigon by steamship. 313.

The above considerations would apply to the majority of the hardwoods which do not float by themselves. In the case of teak, pine and mock mahogany (mai-niom-pha), for example, there would be no difficulty in floating the undressed logs down from Xieng-Khong or even Tang-Ho, if we are to rely on a conclusive experiment performed in 1899. M. Lussan succeeded in bringing 170 undressed teak logs all the way from Luang-Prabang to Saigon, coming through the valley of the Me-Khok by way of Xieng-Sen (1).

(1) "This year the teak logs which M. Lussan is bringing down from the same region are said to represent about 600 cubic meters. When last heard from, the billets had left Khone (the island was crossed via the Decauville railway so as to avoid the rapids). Losses of billets at this time amounted to only 2-1/2 to 3 percent of the total number.

"The Superior Resident in Laos notes that an ingenious system of floating was used this year. The logs were tied together in groups of only three or four and launched into the current.

313 M. Lussan merely had to see that they were followed at a distance by two light pirogues, the duty of the latter being to explore the banks and islands and push back into the current any of the small rafts which might have gone aground along the way.

"All the logs were then halted above the rapids by lookout posts judiciously located at narrow points in the river. They were again set free, but this time singly in order to traverse the rapids. Below the rapids the logs were collected by the same lookout system, the lookouts now being located at two points on the downstream reaches. The distance between the two points had been calculated so that the logs would pass by the first outpost at night and be collected at the second outpost twelve hours later, that is to say during the day." (Bulletin économique de l'Indo-Chine, 1900.)

We shall study below, in Chapter VII, the methods of cultivating, extracting and exploiting the forest resources and the measures which the administration has taken for their conservation and development.

[309] 2. FAUNA. ANIMAL HIDES AND REMAINS

136 The fauna of Laos is scarcely different from that of India. It is just as varied and just as abundant, proportionately speaking.

Domesticated Fauna

231 Domesticated fauna includes the elephant, horse, buffalo, ox, pig, goat, poultry (chickens and peacocks), turtle-doves, dogs and cats (some with a straight or curved tail, others with a short tail curling in a ball, and still others without a tail, of Siamese origin). [Illustration alongside text here]

Wild Fauna

136 a) Mammals and rodents. These animals include the wild elephant and the rhinoceros (both Indian and Sumatran varieties, that is to say with one or two horns), the buffalo, the ox, the stag, the elk, the buck, the gazelle, the agouti, the wild boar, the otter, a great variety of monkeys (lemurs, paresseux, dormeurs, macaques, gibbons), the scaly anteater, the mongoose (ctenomis), the genet, the civet cat, the shrew-mouse, the polecat, the ordinary squirrel

314 The wax is not of uniform quality in Laos, but varies in color and texture depending on the region, the type of bees [336] which produce it, and also on the flowers on which the latter feed.

In this land there are hive hunters who have a rare skill and an extraordinary flair. They are able to find wild hives in the confusion of the forest foliage, in hollow trunks and in rocky crags where no one else could. The methods used to capture the swarms of bees and their hives differ little from those in use in Europe, and include noise, music and smoke.

[789] The Laotians claim that some bee hunters are able to get rid of the swarms of bees by attracting their queen by means of the sound of a kind of flageolet and by pronouncing certain cabalistic words.

435 The price of wax is quite high. A hundred kilograms cost 250 francs in Luang-Prabang, 219 francs in Nong-Khay, 290 francs in Cammon, 300 francs in Song-Khone and Saravane, 333 francs in Bassac, 208 francs in Attopeu, 312 francs in Stung-Treng, 500 francs in Korat, 250 francs in Pnom-Penh, and 300 francs in Cholen.

15. Rattan (Vai).

314 The rattan is a palm tree of the genus Calamus rudentum and
285 Calamus petraeus. There are several types in Laos, which are used in accordance with their particular qualities.

The rattan industry is still in its early stages. A few Kha tribes of southern Laos traffic in rattan and supply the needs of local consumption, either in the form of crude rattan delivered in bundles, or in the form of mats and baskets, at a price of five francs per thousand or about sixty kilograms. It is present in great abundance throughout the whole land, and in northern Laos is even used for trade with Siam, which produces little rattan.

It is to be hoped that among the samples sent from Laos to France there will be some good ones which can be used abroad in the manufacture of all the wickerwork and esparto articles whose consumption is constantly increasing. This would provide an appreciable source of revenue for the land.

16. Bamboo.

313 There are some twenty varieties of bamboo. All [337] [Illustration] [338] [Blank page] [339] except one of these grow wild, the exception being the golden bamboo (Mai-So-Kham), which is chiefly cultivated in the enclosures of pagodas.

The following description of the many uses of bamboo is taken from the interesting work by Mme. Massieu:

149; Reinach--247 G-3 (no date) 1901 AM1 Indochina
Laotians AM8

"What makes everything easy and is used for everything is this hollow wood, at once so solid and so light, the incomparable bamboo. In France we see it only in the form of pleasant but useless little articles of furniture. Here bamboo is sufficient to every task. It provides the whole house, frame as well as walls. The inner walls and floors are made of matted bamboo lathwork. Yet such a house, with its furniture, bed, tables, various accessories and its luxury objects, if you are a person of refinement, can be improvised for you in a space of two hours wherever you want.

"Has a bridge been washed out? In two hours, thanks to this wood which is easy to manage and to work, men will have made a new bridge. One is especially struck, at the beginning of this life which is so free and, more than any other, independent of men and things, by the great simplicity and ingenuity of all the procedures. Objects are rudimentary but practical, easy to make, soon ready and simple to repair. Everyone knows how to build ordinary furnishings, and no interruptions are caused here as they are when even the slightest damage occurs to one of our highly developed utensils, which only a specialist knows how to repair.

"A bamboo tube is a safe place for your maps and papers. It is a drinking glass, and it is also a pipe for smokers. On a larger scale, it is a bucket for carrying water, and the receptacle for all liquid and solid provisions. When provided with a handle it serves as a pot for the Laotians to cook their rice in, or to prepare syrup from the sugar palm. When torn into thongs it is used as rope and string. Ligatures of sapeks are threaded on kelates, or bamboo filaments, and this is what makes our new Indo-Chinese sou, with its round hole in the middle, so impractical. Those who preside over the striking of our coins are unaware that the kelate is square, a fact which the first comer from the interior could have told them. Baskets of all kinds are made with these same kelates for holding and transporting material. Hats are also made of them to provide shelter from the sun and rain. At night, when the stage of your journey is too long and you have to continue after nightfall even at the risk of meeting a tiger, setting fire to a bamboo branch is enough to frighten any off and to light your way. And not only is bamboo used to make torches, hats, string, dishes, furniture, houses and bridges, but it also serves as animal fodder and even as food for the natives, who eat the tenderest shoots as we would eat asparagus.

313 "There are several kinds of bamboo. The large bamboo which is used to make boxes and floats is called mai-bane. The mai-tot is the male bamboo, [340] strong and slender, with its joints closer together. When provided with an iron point it is used for poling boats along in the rivers. The mai-an is the female bamboo, hollower and lighter, from which raft coverings and partition mats are made. It is the kind used to make kelates" (1).

[113] (1) Revue des Deux Mondes. "A travers l'Indo-Chine. Le Haut Laos et le Mékong," by Mme Isabelle Massieu, August 1, 1900.

314 17. Rubber.

824 Rubber is called "Niang-Niut" in Laotian, which means, literally, elastic gum.

There are several plant varieties in Laos which supply a latex which becomes elastic after coagulation. Certain types of the ficus family, doubtless of the elastica genus, yield rubber of comparatively good quality. The plants which produce the most latex and that of the best quality, however, are lianas whose scientific nature has not yet been settled.

More than ten different kinds of rubber lianas are known. The Laotians call these "Khua-Mak-Niang, Khua-Hai, Khua-Niut-Niai, Khua-Mak-Som, Khua-Mak-Katong-Katiou, Khua-Khao-Pong, Khua-Lam-Sai, Khua-Tang-Tong, Khua-Som-Lam, Khua-Mak-Ka-Khay, Khua-Mak-Khao-Ngoua," etc.

It is quite certain that these diverse names do not refer to as many species which are dissimilar from the botanical point of view, but are merely different local terms used at widely separated points in order to designate the same lianas. Without any concern for their chief virtue, which is to supply latex rubber, the Laotians have named them for their appearance, the shape or type of their fruit, etc.

It seems likely that the varieties which we have just enumerated may be reduced to seven and perhaps less. We shall not be able to tell for sure until we have examined the stalks, leaves, flowers and fruits of the various species in a laboratory. The liana which is most widespread in Laos is the one bearing the name Khua-Mak-Khao-Ngoua or liana with fruits like buffalo horns. It is also called Khua-Mak-Som or liana with acid fruits. The latex is collected twice [341] each year, once in June or July (rainy season), and again in October or November (dry season). The first harvest yields only second grade rubber which is black and sticky. The second crop, which is less

224 this animal has been hunted to excess and because of [346] the value of ivory, it has disappeared from certain regions. It is scarcely ever found now except in the valleys of the Sesane, the Se-la-Drang and the Srepok and in the Muong of Maha-Say in Lower Laos, and in Vien-Tiane, Tran-Ninh, the Hua-Pahn, the Sib-Song-Chau-Thai, etc., in Upper Laos.

•313 For the last ten years or so the working of the teak forests in the Siamese and Shan territories of the basin of the Upper Menam (1) has

224 438 (1) Elephants are used in Siam to carry teak logs from the place where they are felled to nearby watercourses.

necessitated the use of an ever-increasing number of these pachyderms, among which overwork and accidents claim many victims. Thus to fill the gaps elephants have to be sought where there are still some left, and it is precisely in French Laos, on the left bank of the Mekong, that a few wild herds are still found.

Since there is no shortage of buyers, it is to the interest of the hunters to capture as many of these valuable animals each year as possible and to train them with a view towards selling them. Since demand even greatly exceeds supply, an inflationary tendency has resulted which has caused prices to rise by sixty to eighty percent. Besides the sum paid to the sellers, the purchasers have to pay an exit duty amounting to half of the purchase price. This tax, like other similar ones of which we shall speak later on, is levied to compensate for the real estate tax which Laos does not yet have.

224 231 The methods now used to capture wild elephants are identical, except for minor details, in all parts of Laos. In order to summarize them and to provide a description of an elephant hunt, we shall have recourse to the interesting account which Captain Gosselin (2) has given.

(2) Le Laos et le Protectorat français, op. cit. [Paris, 1900.]

"At the beginning of the dry season, the owners of tame elephants make ready for the great beats which take place in the mountains near the Annam frontier. They train their elephants to run, so that they will develop speed, and manufacture immense ropes forty to fifty meters long, made from strands of buffalo hide [347] and rattan and strengthened with copper wire. A collar is fitted at one end of each rope which is large enough to be put around an elephant's neck, while a ring about sixty centimeters in diameter is fitted to the other end.

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Coffee. The coffee bushes which have been planted in Laos by way of experiment in different regions and at different altitudes, depending on the variety (Liberian or Arabian), seem to be thriving. A few small plantations, like those on the Black River (on the frontier of the Sib-Song-Chau-Thai) and at the mission of the Bahnars, are even said to be producing a full yield already. But these results are still too sketchy for us to be able to state that the cultivation of coffee in Laos is ready to leave the period of experimentation and be undertaken on a large scale.

If it is true, as some say, that planting coffee in Annam and Tonkin has been extremely disappointing, then this does not offer encouragement for trying this crop in Laos.

Jute. The fiber of this plant is in great demand for making grain sacks and cloth wrapping material known as gunny. Although some jute is grown in Annam and Tonkin, in Indo-China we are still dependent for this product on British India, which sends us large quantities of it. The cultivation of this plant might be tried in Laos, in the higher parts of the country.

III

FOREST PRESERVATION AND CONSERVATION--REFORESTATION

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The administration of Laos has made an effort to remedy, insofar as possible, the indifference of the population as concerns conservation of forest resources. It has taken measures to facilitate the reforestation of hills and plateaus which have been cultivated as rais.

These measures were indispensable, if any attempt was to be made to prevent the hills and hillocks of Laos, as well as the mountainsides, from becoming bald and sterile over the years as has already occurred in the Sib-Song-Pahn-Na and the northern regions. The heights do not have any trees or green foliage, the rock is bare on their [391] prominences, and only in the valleys which face to the north is there any soil containing vegetable matter.

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This deforestation and denudation are due to the annual burnings which spread from one rai to another at the time when the inhabitants turn to new clearings. Out of indifference they allow the fires to consume the young vegetation which was beginning to cover the old rais and which, by holding back the soil containing vegetable matter, was attenuating the destructive effects of erosion.

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Furthermore, the oft-repeated clearings cannot fail to have a certain influence on the atmospheric state of the region and on the constitution of the soil. Deforestation, in fact, brings about the denudation of high points all the way down to the rock which has not yet become decomposed, and rainwater, by carrying sterile alluvia down to the valley bottoms, partly obstructs the beds of rivers and causes the latter to overflow and erode their banks.

Furthermore, since clouds are no longer stopped by the forests which used to cover the heights they carry their fecundating water elsewhere at the very time when it is the most needed.

The result, in the last place, is a diminution in the yield from plains ricefields, which suffer from this insufficiency of natural irrigation.

Finally these clearings, made in a brutal, arbitrary and irrational manner, were causing the disappearance of useful varieties of trees forever. A little soda and potash is the only benefit to be drawn from combustion of the forests, and even this fertilizer is carried off by water in the following rainy season.

Henceforth, in accordance with the instructions published throughout the whole country by the superior administration of Laos and by the province administrators, cultivation on rais will be subject to the following regulations.

1. Sites to be cleared shall be determined by the local authorities, who shall choose land sufficiently far from old rais which are in the process of being reforested so that fires may be kept from spreading.

2. Rais in the process of being reforested shall be surrounded by a ditch [392] and by felled trees and brush. The owners of the nearest rais shall keep a careful watch, despite these precautions, in order to prevent fires from spreading.

3. When trees of a fine growth or of a useful variety are found on land which has been selected for the purpose of making a new rai, these shall be felled according to custom. But instead of burning them on the spot the woodcutters must push them off the limits of the rai and into a place safe from fire, so that they may later be utilized.

4. Furthermore, the local authorities shall oblige the inhabitants to sow or plant rapid-growing trees with roots sufficiently powerful to hold back the soil containing vegetable matter, over the whole area of abandoned rais.

By following the above procedure on all abandoned rais, it is to be hoped that they will be restored within fifteen or twenty years and will have enough humus so that they will again lend themselves to cultivation.

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When restored in this manner, their vegetation will reestablish the hygrometric regime of the region and the rational distribution of ground water.

FOREST PLANTATIONS

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Starting from the principle that trees of hardwood or precious varieties will rapidly disappear as soon as the forest riches of Laos are regularly exploited, a few administrators have thought that it would be wise to begin now and plant selected varieties.

This precaution will not seem either excessive or premature if one considers the time it takes for any tree whatsoever to reach full growth and acquire commercial value.

Since no reliance can be placed either on the people's initiative or on their willingness to concern themselves with plantings, it has been proposed that action be taken by way of authority. The inhabitants of each village, and particularly the registered inhabitants, would be forced to plant each year, in suitable spots which are easily accessible and near inhabited centers and watercourses, a certain number of trees of the [393] [Illustration] [394] [Blank page] [395] most useful varieties, which were well suited to the climate and soil of the region, and then forced to supervise their growth.

An example has already been provided in the way of teak plantations, for higher authorities had seeds of this precious tree distributed to the natives through their administrators.

The Laotians are so carefree and have so little concern for the morrow that many of them allowed the seeds to spoil without sowing them. It was necessary to issue orders and even make threats before the seeds were finally sowed.

One day we may therefore hope to see a great many teak trees rising from the ground where today there grow only the dwarfed and inferior quality trees of the forest glades. They will provide a source of inestimable wealth for the land (1).

(1) In Siam, teak exports represent an annual value of six to seven million francs.

Colonel Tournier, the Superior Resident in Laos, recently took the following measures for the conservation and reforestation of the teaks in the region of Xieng-Khong:

1. Designation by the Administration to the concessionnaire of trees which must be notched;

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2. The obligation on the part of the concessionnaire to rid the young teaks of the lianas which choke them;

3. The obligation to replant ten young teak shoots for every tree which is felled;

4. The obligation on the part of villages near groups of teaks to open up roads leading to these groups; a prohibition against making rais and cutting down trees without permission; the obligation to plant from fifty to a hundred teaks per house each year, depending on the remoteness of the village.

In return, the inhabitants of these villages need not fulfill the twenty days of labor drafts due each year.

Besides teak, we may recommend the planting of certain other trees, such as the "Mai-Niom-Pha" (mock mahogany), the "Mai-Thon" (mock walnut), the "Mai-Kha-Nioung" (mock rosewood), the "Mai-Lang-Dam" (ebony), etc.

The eucalyptus would doubtless grow well in certain regions of Laos.

PROVINCE EXPERIMENTAL GARDENS

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For several years now there have been experimental gardens in each commissionership. They serve as trial fields for the cultivation of certain European and Asian plants which are unknown or rare in Laos.

[396] These gardens are also schools of practical agriculture for the natives. Seeds and plants are distributed to the latter, and they are given extremely summary bits of information about certain plants whose cultivation would be advantageous from the point of view of commercial transactions. These gardens are destined to render services to future colonists, and the trials which are made there deserve encouragement.

Although not all heads of provinces possess the same degree of agricultural and horticultural knowledge, they devote the utmost zeal to making the most of their gardens. Seconded by their staff and guided by the enlightened counsels of the Superior Residency, of the department of Agriculture and of the directors of the botanical gardens of Indo-China, most of them have already achieved satisfactory results.

[113] The special periodicals such as the Bulletin économique de l'Indo-Chine, the Revue des cultures coloniales, etc. which are sent to each commissioner are of invaluable help in this connection (1).

(1) Some of the libraries in the commissionerships contain a book

396 the purity of line and elegance, joined with solidity, which go to make up the deserved renown of Laotian pirogues.

If it be noted that some of them are more than twenty meters long and can hold from forty to fifty paddlers, it will be agreed that a certain amount of effort is necessary to bring trees from which the pirogues are to be hewed from the forest to the workshop.

It is difficult, without the help of a drawing, to give a clear idea of how a pirogue is hewed to any who has not seen the process. We shall try to do so, however, referring the reader to the illustrations reproduced in this work for an idea of the general shape.

[313] After being selected in the forest, the tree destined to be made into a pirogue is felled and then taken to the nearest watercourse, where it is floated to the workshop. There it is divested of its bark and sap-wood, and the heartwood is laid bare. Depending on its kind and shape, one side or another of the log is chosen as the bottom of the pirogue.

Carpenters armed with hatchets begin to shape the piece, being careful not to harm the wood in the center of its length, where the main beam of the ship will be located. They hew out the prow and the stern, giving them the elegant, raised shape which the finished product will have. The piece of wood is then turned over. The thinned extremities are cut with a slight curve which is accentuated at the stern, and each end then has an outline shaped like a truncated fish tail.

Curved lines run from both ends to the more swollen part [465] which forms the center. A deep notch (1) as broad as a man's hand

(1) This notch is similar to that of a weaver's shuttle.

is cut vertically into the upper part of the still unfinished block, following the median line between the points of origin of the two ends, that is to say between the points where they join the body of the pirogue. This notch is cut deep enough to leave the requisite thickness of wood at the pirogue's bottom at the center of its length. It then decreases progressively, and disappears at the points where the ends join the body. Then levers are used to open up both edges of the notch gradually, while fire is also introduced into the hole and the bottom of the piece is kept wet. As the opening grows wooden cross-braces and chocks are placed between the sides of the trough which is gradually taking shape, like a pea pod being opened down the middle. Between each application of fire, and as the cavity grows larger, wood

who were disposed to follow them.

464 563 stitions and perhaps also the opposition of the mandarins who for centuries have tried [516] to prevent any exodus towards the lands situated beyond the mountains, have in the long run made him a stay-at-home.

000 This industrious, intelligent and prolific people prefers to struggle for life in agglomerations which are too dense, rather than emigrate in order to obtain a life of well-being and ease.

We should not, however, despair of ever seeing the Annamites spread into Laos and there provide a powerful force for repopulation and make the low plains which border the Mekong from Cammon to Cambodia bear fruit. It is up to us to destroy the legends, to reduce to nothingness the superstitions which have gained currency, and then to use our influence to bring an end to the ostracism in which Laos is held. Does it not belong today to the great Indo-Chinese family in which all the component peoples are French subjects in the same right?

On the day when the mandarins no longer sustain a fear of Laos and a dread of slavery among the Annamites, it will be possible to induc them to emigrate into the Mekong basin. The colonies already in existence, particularly at certain points in Cammon, will grow from that day on through the addition of newcomers. We must not deceive ourselves into thinking that such immigration will not take time, and so in order to meet our most pressing needs European colonies in Laos will have to appeal to laborers from the southern provinces of China and especially from the island of Hainan, that inexhaustible reservoir which has supplied coolies to several parts of the world for so many years.

But, it will be asked, is Laos ready to welcome colonists who want to work the mines and forests and to engage in trade, agriculture and livestock breeding? We believe that, in the present state of communications, some of these undertakings are possible at this moment and that others cannot hope to succeed until the country's economic equipment has developed.

316 • 313 185 As concerns commerce and the exploitation of forests and mines, we have noted that several attempts have already been made. These are valuable indications showing the [517] courses which isolated colonists or companies which would like to employ their capital in our new possession can follow as of the present time. Indeed, such undertakings yield profits almost from the very beginning, and if they are

316 begun at judiciously chosen points [Illustration here] they can be accommodated to the existing means of communication and transport
313 if necessary. As for the sums needed to engage in a commercial, mining or forest enterprise, it is difficult to determine these in any
185 precise fashion for, depending on the region and the special conditions of the terrain, such matters may require more or less capital.

[518] For dealing in teak wood (1), for example, the sums needed

(1) A rigorous investigation made by a chief guardsman of the Laotian militia of the region of Xieng-Khong, on the left bank of the Mekong, has shown that the number of teak trees ready for cutting in the province of Muong-Sing is 4,975 in all, 2,000 of which are of exceptional size for the region, that is to say that their diameter varies between 0.3 and 0.6 meter. Counting the young shoots and young trees, the total number of teaks which we possess in Muong-Sing may be estimated at about 20,000.

Another group is situated on the right bank of the Mekong, in the vicinity of Pak-Lay and in the basin of the Nam-Poun. It includes from 10,000 to 12,000 teak trees ready for cutting, concessions for about half of which have been granted. (Bulletin économique de l'Indo-Chine, 1900.)

for purchase and transport would depend on the quantity which it was desired to export. As an average indication, the sum of 40,000 francs might be given for operations on 1,000 teak trees.

From the point of view of mineral resources, certain deposits require capital in the millions for their exploitation, while others might be worked profitably with sums varying between 250,000 to 500,000 francs.

433 In the way of industries which may be started at the present time,
185 we may cite only the establishment of rice distilleries in southern Laos and of a mechanical sawmill at Khone.

[273] A distillery could be set up without any great expense at the
[243] mouth of the Mekong and the Sedone, for example. Thanks to the price of glutinous rice which is five or six times less expensive in this region than at Pnom-Penh, the alcohol from such a distillery would find a certain market in Cambodia.

185 For several years now there has been talk of establishing a
313 mechanical sawmill on the island of Khone which would obtain its motive power from the nearby waterfalls. Besides teak wood (2),
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(2) Teak is generally regarded, although wrongly, as the wood

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with the greatest value on European markets, but woods which are very common in Indo-China are often just as highly esteemed. Among others we may cite the "Mai-Niang," the "Mai-Thon" (mock walnut), the "Mai-Deng" (rosewood), the "Mai-Dou" (thuja), the "Mai-Lang-Dam" (ebony), etc.

a great many other varieties of trees could be used to feed the sawmill and, like alcohol, find an easy outlet in Cambodia and Cochinchina.

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[519] Finally, one other enterprise might be attempted. This is livestock breeding and particularly the raising of oxen, which sell in Cambodia and Cochinchina for double their value in their country of origin. We have previously mentioned some of the points which would be particularly well-suited to undertakings of this nature. The greatest hazard to be feared is the appearance of epizootic epidemics such as the ones which occur almost periodically and against which there is no weapon. The Pasteur Institute of Nha-Trang does not send out [illustration here] anti-plague serum as is done with cowpox vaccine, for as yet its incoulation must be left in the hands of specialists.

We believe that the system of livestock leasing would perhaps yield good results with the Laotian peasants.

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Since no serious attempt has as yet been made in Laos, it is difficult to treat of agricultural enterprises which Europeans might undertake. Nor must we forget that affairs of this sort require comparatively large sums of capital and professional knowledge which takes a long time to acquire. It is, moreover, up to the administration to provide the initial impetus, for it has the necessary means, equipment and personnel. When plantations have succeeded it [520] will easily find colonists to continue the work which has been begun, and capital will then find its way into Laos.

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Speaking for ourselves, we are persuaded that this land will soon be open to colonization. Only the coast of Indo-China is well-known, and on the day when it has been demonstrated that the mountains as well are a source of wealth, the fortune of Laos will be made. There is a blank page on which it is up to us, by profiting from the gropings and errors of the past, to trace the principles of true colonization, which provides well-being for the population and creates outlets for our industry and our commerce.

A very high official of Laos recently wrote, speaking of the development of this land: "Once everything was for Tonkin and